

MITSUYA et al. — 10/808,325
Attorney Docket: 009270-0308833

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) An overlapped-sheet detection apparatus comprising:
a conveying path on which sheets are conveyed;
a forwarding roller provided at said conveying path to forward said sheets in a conveying direction;
a shifting roller provided opposite to said forwarding roller to shift said sheets back to a reverse direction of said conveying direction if said sheets are overlapped;
a motor for supplying said shifting roller with driving torque to shift said sheets back to said reverse direction of said conveying direction; a rotation detection unit for detecting a rotation state of said shifting roller; and
a discriminator for judging from an output of said rotation detection unit that said sheets are overlapped,
wherein said rotation detection unit includes an encoder and said discriminator compares an output of said encoder with predetermined reference rotation speed and reference time to judge if said sheets are overlapped.
2. (Currently amended) An overlapped-sheet detection apparatus according to claim 1, further comprising;
an arm for making said shifting roller depress ~~depressing~~ said forwarding roller with pinch-pressure ~~through said shifting roller~~, said arm having one end portion provided at a rotation axis of said shifting roller and another end portion rotationally provided at a fixed axis; and
a spring for rotating said arm around said fixed axis to depress said shifting roller against said forwarding roller with said pinch-pressure in order for said forwarding roller to cooperatively rotate said shifting roller when said sheets are not overlapped.
3. (Original) An overlapped-sheet detection apparatus according to claim 2, wherein said arm transmits said driving torque to said shifting roller.

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4. (Currently amended) An overlapped-sheet detection apparatus according to claim 1, further comprising;

an arm for ~~making said forwarding roller depress~~ ~~depressing~~ said shifting roller with pinch-pressure ~~through said forwarding roller~~, said arm having one end portion provided at a rotation axis of said forwarding roller and another end portion rotationally provided at a fixed axis; and

a spring for rotating said arm around said fixed axis to depress said forwarding roller against said shifting roller with said pinch-pressure.

5. (Canceled)

6. (Withdrawn) An overlapped-sheet detection apparatus according to claim 1, further comprising a controller for stopping transmitting said driving torque from said motor to said shifting roller after a lapse of predetermined time after when said discriminator judges that said sheets are overlapped.

7.-27. (Canceled)

28. (New) An overlapped-sheet detection apparatus according to claim 1, wherein said forwarding roller is a first forwarding roller rotating while making contact with the sheets to forward the sheets in the conveying direction on the conveying path,

said shifting roller is provided at a position where said first forwarding roller contacts said sheets,

said shifting roller being configured to shift said sheets if said sheets are overlapped and to follow a rotation of said first forwarding roller if said sheets are not overlapped, and further comprising:

a second forwarding roller provided closer to an entrance than to said first forwarding roller, said second forwarding roller rotating while making contact with the sheets to forward the sheets between said first forwarding roller and said shifting roller; and

depression means for depressing said second forwarding roller against said sheets.

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29. (New) An overlapped-sheet detection apparatus according to claim 28, wherein said first and second forwarding rollers are disposed at a distance defined between axes thereof set to be shorter along the conveying direction than a shortest one of said sheets.

30. (New) An overlapped-sheet detection apparatus according to claim 28, wherein said depression means transmits a conveying force of said second forwarding roller to said sheets and depresses said second forwarding roller to allow the overlapped sheets to slide.

31. (New) An overlapped-sheet detection apparatus according to claim 30, wherein said depression means is made of a plastic resin plate spring.

32. (New) An overlapped-sheet detection apparatus according to claim 31, wherein said plastic resin spring plate has a convexly curved portion that crosses over the conveying path and is projected into said second forwarding roller.

33. (New) An overlapped-sheet detection apparatus according to claim 28, further comprising a pinch roller provided at a position where said second forwarding roller contacts said sheets to depress said second forwarding roller detachably with a pinch-pressure.